

Multiwavelength Brillouin/ erbium fiber laser utilizing virtual reflectivity in dispersion compensating fiber

ABSTRACT

We proposed and experimentally demonstrate a novel scheme of Brillouin/erbium fiber laser (BEFL) in a ring cavity configuration. The Brillouin gain media, which is provided by a dispersion compensating fiber (DCF), was manipulated and used as virtual mirror. The laser structure that consists of only four optical components is simple, devoid of the complex structures employed previously to enhance the feedback mechanism normally associated with multiwavelength sources. Our structure can produce up to 4 stable channels at a low Brillouin pump power of -1 dBm and a 1480 nm pump power of 130 mW which are separated by 10 GHz (0.08 nm).